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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,978	01/23/2004	Plamen Denchev	205502-9037	9303

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EXAMINER	
HWU, JUNE	

ART UNIT	PAPER NUMBER
1661	

DATE MAILED: 11/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/764,978	DENCHEV ET AL.	
	Examiner	Art Unit	
	June Hwu	1661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-14,16-23 and 26-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-14, 16-23 and 26-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment to the claims and remarks/arguments filed September 25, 2006 have been acknowledged and entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in the prior Office action.

3. The objection of claim 39 because of informalities is withdrawn in light of Applicants' amendment of the claim.

4. The rejection of claims 1, 4-14, 16-23, 36-34 and 36-45 under 35 USC 112(1) is withdrawn in light of Applicants' amendment of the claims.

5. The rejection of claims 1 and 23 under 35 USC 112(2) is withdrawn in light of Applicants' amendment of the claims.

Claim Rejections - 35 USC § 112

6. Claims 5, 18, 20, 21, 27, 38, 41 and 48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Dependent claims are included in all rejections. The rejection is modified from the rejection set forth in the Office action mailed March 23, 2006, as applied to claims 5, 18, 20, 21, 27, 38 and 41, due to Applicants' amendment of the claims. Applicant's arguments filed September 25, 2006 have been fully considered but they are not persuasive.

Applicants urge that the term "about" does not automatically render a claim indefinite.

This is not found persuasive because the specification on page 7, lines 6-9 does not specifically point out the exact percentage of galactose-containing sugar. With regard to claims citing the phrases "less than about" (claims 5, 20, 27 and 41) and "more than about" (claims 18

and 38), the specification on page 7 does not specifically point out the exact percentage of galactose-containing sugar. With regard to claim 48, in its recitation of "at least about" there is no indication in the specification the specific range of galactose-containing sugar.

Claim Rejections - 35 USC § 102

7. Claims 1, 5-8, 12, 16-23, 27, 28, 32, 36-46, 48 and 49 are rejected under 35 U.S.C. 102(b) as being anticipated by von Arnold (J. Plant. Physiol., 1987, vol. 128, pp. 233-244). The rejection is modified from the rejection set forth in the Office action mailed March 23, 2006, as applied to claims 1, 5-8, 12, 16-22, 43 and 44, due to Applicants' amendment of the claims. Applicants' arguments filed September 25, 2006 have been fully considered but they are not persuasive.

Von Arnold discloses the formation of embryogenic callus when grown in a gelled basal medium containing 30mM sucrose. The induction medium was supplemented with between "about 1% and about 6%" galactose (monosaccharide), glucose or fructose, and auxin and cytokinin (pages 234-235 and Table 5). Von Arnold also discloses the addition of galactose in the maintenance medium by stating "embryogenic callus was cultured under similar conditions as during the initiation of embryogenic callus" (p. 235, 7th paragraph). And finally in the prematuration medium, she states, "For further development of somatic embryos, the embryogenic calli were transferred to medium..." (p. 235, 8th paragraph).

Applicants urge that von Arnold does not teach use of galactose in combination with additional sugar of at least about 1% of a galactose-containing sugar.

This is not found persuasive because on page 235, 1st paragraph von Arnold states, "Various carbon sources were compared by culturing embryos on media **supplemented** with sucrose, glucose, fructose, maltose, galactose or xylose at 30mM." Applicants states that

30mM of galactose is 0.54% which is at "least about 1%". Von Arnold also states on page 234, 4th paragraph that LP medium was used as the basal medium containing 30mM sucrose was used throughout the experiment.

Applicants urge that von Arnold does not disclose a medium containing a combination of more than one sugar.

This is not found persuasive because as stated above the basal medium contains sucrose and supplemented with galactose as shown in Table 5 for the initiation of embryogenic callus (p. 239, 1st paragraph). Clearly that is more than one sugar in the medium.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1, 4-8, 12, 14, 16-22, and 43-44 remain rejected under 35 U.S.C. 103(a) as being unpatentable over von Arnold (J. Plant. Physiol., 1987, vol. 128, pp. 233-244) in view of Schuller et al (IDS dated October 25, 2004, Plant Cell Reports, 1993, vol.12, no. 4, pp. 199-202) and further in view of Find, U.S. Patent No. 6,897,065. The rejection is repeated for the reasons of record as set forth in the Office action mailed March 23, 2006. Applicants' arguments filed September 25, 2006 have been fully considered but they are not persuasive.

Applicants urge that Schuller and Find do not teach the use of galactose or lactose as a carbon source in the induction, maintenance or prematuration media.

This is not found persuasive because Schuller taught that lactose was a superior carbohydrate source for *Abies alba* in the proliferation and maturation medium (p. 199, right col., last paragraph to p. 200, left col.). Find taught that in the maturation medium maltose was used as the carbohydrate source (col. 9, lines 12-15). Von Arnold taught the combination of sucrose and galactose in the induction medium (p. 234, last paragraph and 239, 1st paragraph). Von Arnold also taught the addition of galactose in the maintenance medium (p. 235, 7th paragraph) and in the prematuration medium (p. 235, 8th paragraph). One skill in the art would have been motivated to combine the method of supplementing galactose to the induction, maintenance and prematuration media as taught by von Arnold because galactose-containing sugar had promoted the maturation of somatic embryos with the methods of Schuller's lactose and Find's maltose.

9. Claims 1, 4-9, 12, 16-23, 26-29, 32, and 36-45 remains rejected under 35 U.S.C. 103(a) as being unpatentable over von Arnold (J. Plant. Physiol., 1987, vol. 128, pp. 233-244) in view of Vuke et al (Plant Cell Reports, 1987, 6(2), pp. 153-156). The rejection is repeated for the reasons of record as set forth in the Office action mailed March 23, 2006. Applicants' arguments filed September 25, 2006 have been fully considered but they are not persuasive.

Applicants urge that Vuke teaches media and methods for growing non-embryogenic cultures and not embryogenic cultures.

This is not found persuasive because Vuke was combined with von Arnold to show that callus of *Pinus taeda* was able to grow in medium containing galactose and lactose (Table 1).

10. Claims 1, 5-12, 14, 16-23, 27-34, 36-43 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over von Arnold (J. Plant. Physiol., 1987, vol. 128, pp. 233-244) in view of

Uddin (U.S. Patent No. 5,187,092). The rejection is modified from the rejection set forth in the Office action mailed March 23, 2006, as applied to claims 1, 5-12, 14, 16-23, 27-34, 36-43, due to Applicants' amendment of the claims. Applicants' arguments filed September 25, 2006 have been fully considered but they are not persuasive.

Applicants' urge that Uddin does not teach or suggest the use of at least about 1% galactose-containing sugar and additional sugar for induction, proliferation or prematuration of embryogenic culture.

This is not found persuasive because Uddin was combined with von Arnold to show that somatic embryos from *Pinus taeda*, *Pseudotsuga menziesii* and *Pinus radiata* were able to mature in medium supplemented with galactose-containing sugar.

For the reasons outlined above and in the previous Office action, the rejection is deemed proper and is maintained.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to June Hwu whose telephone number is (571) 272-0977. The Examiner can normally be reached Monday through Thursday from 6:00 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Anne Marie Grunberg, can be reached on (571) 272-0975. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

June Hwu

October 25, 2006

KUBELIK, PH.D.
MARY EXAMINER